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ChatGPT and Academic Writing Self-Efficacy: Unveiling Correlations and Technological Dependency among Postgraduate Students

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Abstract
This study investigates the impact of ChatGPT usage on academic writing self-efficacy among 148 postgraduate students from Dhar EL Mahraz in Fez and Moulay Smail in Meknes, Morocco. It aims to illuminate the dynamics between ChatGPT usage and self-efficacy in academic writing. The study employed statistical analyses such as independent-sample t-tests and ordinal logistic regressions within a cross-sectional framework to explore the dynamics between ChatGPT use, reliance, and self-efficacy in scholarly writing. Results reveal that ChatGPT users reported higher self-efficacy scores (M=3.96, SD=0.61) compared to non-users (M=3.44, SD=1.38), suggesting the potential of ChatGPT in enhancing writing self-efficacy by providing continuous feedback and fostering a sense of accomplishment. Further analyses indicate that writing self-efficacy significantly predicts the duration of ChatGPT usage (Estimate = .692, p = .011), suggesting a positive correlation between self-efficacy and prolonged ChatGPT engagement. Furthermore, the frequency of ChatGPT use was found to predict reliance on the tool (β = .619, $p < .001$), underscoring a habituation effect. These findings contribute to the growing discourse on the role of AI in academic writing, emphasizing the benefits of ChatGPT in fostering writing self-efficacy while cautioning against over-reliance. Recommendations include longitudinal studies to assess the evolution of writing self-efficacy with continued ChatGPT use and broader research encompassing various AI tools and academic levels. This study sheds light on the advantages of AI in education and draws attention to the need for a balanced integration of technology in academic practices.
Keywords: artificial intelligence, academic writing, Chatgpt, Moroccan context, self-efficacy, technological dependency, writing ability

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Introduction

Artificial Intelligence (AI) tools have steadily infiltrated academia, presenting novel ways to enhance research productivity and stimulate creativity in writing. One example of an AI-driven writing assistant is the language model known as ChatGPT, whose impact on academic self-efficacy merits comprehensive examination. This study explores the influence of ChatGPT usage on academic writing self-efficacy among postgraduate students at Dhar EL Mahraz in Fez and Moulay Smail in Meknes, Morocco.

Self-efficacy, a person's conviction in their competence to execute specific tasks, is vital in shaping educational outcomes. Within academic writing, this self-assurance shapes the methodologies students employ to tackle writing assignments, affecting both the process they follow and the ultimate caliber of their written work. As Artificial Intelligence increasingly assumes a notable role in academic composition, understanding its impact on students' sense of self-efficacy becomes crucial.

While ChatGPT offers an array of advantages, there is a risk that it could inadvertently lead to excessive dependence, affecting students' views of their autonomous writing abilities. This investigation aims to scrutinize the interplay between the utilization of ChatGPT and self-assurance in academic writing. Specifically, the study endeavors to ascertain if the length of time spent using the tool is predictive of the degree of dependence on it and to establish whether this level of dependence has a statistically meaningful relationship with self-efficacy in writing.

The outcomes of this research serve to elucidate not only the role of AI applications such as ChatGPT in tertiary education but also aid in devising plans for their judicious incorporation into scholarly writing procedures. The overarching objective of the research is to leverage the benefits of AI technologies in a way that complements, rather than displaces, human proficiencies in academic writing, aiming to balance technological reliance with the preservation of individual writing talents and confidence in these skills.

Literature Review

The Role of Artificial Intelligence in Academia

The ever-evolving realm of artificial intelligence (AI) presents transformative opportunities for education systems, fostering personalized, practical learning experiences and easing teacher workloads (Gocen & Aydemir, 2020). This is evidenced by developments like intelligent tutoring systems and AI-enhanced tools, which replace traditional “one-size-fits-all” teaching with adaptive learning adjusted to individual styles (Gocen & Aydemir, 2020, p. 18). Such AI implementation can stimulate student creativity, optimize classrooms, and transition teachers from mere knowledge disseminators to learning facilitators (Huang et al., 2021). Furthermore, AI aids administrative tasks, including student allocation and assessment design, thus reducing teachers' bureaucratic responsibilities (Reiss, 2021). However, its effectiveness varies across subjects and remains secondary to human expertise in evaluating research findings. For instance, Pence (2019) states, "An AI program may be able to suggest future directions for research, but the researcher must examine the options and decide which is best” (p. 8). To stay relevant amidst these disruptions, educational institutions must respond innovatively, leveraging AI “to provide customized prompt feedback, develop assessments, adapt instruction to the needs of different types of learners, and predict academic success” (Crompton & Burke, 2023, p. 8).

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Exploration of AI-based Writing Tools

The Significance of Writing in Academia

Academic writing fosters critical thinking, complex ideation, and effective communication. Still, educators often prioritize teaching writing theories over practical exercises, potentially hindering students' critical and creative skills development (Hidayati et al., 2021). While writing tasks, particularly essay writing, pose challenges due to limited vocabulary, lack of insight, and specific teaching techniques, they are integral to English language learning at the university level, with proven strategies such as mind mapping enhancing students' essay writing abilities (Hidayati et al., 2021). Teaching the composition of lengthy, formal texts is essential, enabling students to convey complex thoughts effectively across various contexts and bolstering skills like critical thinking, research, and analysis. Such competencies are fundamental across curricula and demand deliberate learning and practice (Purcell, 2013). However**,** students often view writing as an imposed task rather than a valuable skill to refine because of the continuous engagement with technological tools. For example, Purcell (2013) suggests that students' growing use of digital tools and platforms may undermine their writing skills. Both native and international students face the complexity of academic writing, especially those learning English as a second language. Despite these challenges, the focus on writing in academia is vital, necessitating enhanced pedagogical strategies and strategic support to improve students' writing proficiency, given the feedback provision's time-consuming and subjective nature (Nazari et al., 2021).

The Emergence of AI-writing

AI's emergence, notably through chatbots, has provided a significant shift in writing. These AI systems can generate text with fewer errors than humans, although they may lack human-like nuance and precision (Salvagno et al., 2023). Integrating AI in academic writing assists authors in identifying and correcting mistakes, aiding language translation and text summarization, and generating specific outlines for written documents (Golan et al., 2023). The advent of automated writing evaluation and AI-powered writing tools redefines the traditional writing instruction approach (Nazari et al., 2021). Integrating Artificial Intelligence with mobile-based educational platforms (m-learning) in higher education offers considerable potential for enriching instructional adaptability, refining learning mechanisms, and affording real-time evaluative feedback (Nazari et al., 2021). Initial studies suggest AI technologies can improve student engagement; however, further research is needed to confirm their impact on writing skills, particularly in providing grammatical feedback (Nazari et al., 2021; Fadhilah et al., 2018).

Chatgpt, as a writing tool

AI technologies like GPT-3 and ChatGPT are becoming more accessible, scalable, and practical, with the latter notably adept at simulating human-like conversations and providing in-depth responses to complex questions, aiding in promoting programs, customer service, and business. However, it lacks understanding of context, critical thinking, and ethical decision-making and can inadvertently propagate societal biases (Fitria, 2023). ChatGPT's ability to cater to user requirements has been refined through continual upgrades that employ natural language processing, reinforcement strategies, and machine learning algorithms. Although it lacks the capacity for novel idea creation, ChatGPT has demonstrated its utility in scholarly tasks such as condensing articles, automatically producing drafts, and facilitating language conversion (Salvagno et al., 2023).

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The tool aids in study design, analyses, and drafting of scientific articles. Nevertheless, due to accuracy, reliability, and ethical implications, it should supplement rather than replace authors' work, necessitating careful human oversight (Altmäe et al., 2023). Its potential as a language-learning tool, offering personal tutoring and interactive, authentic conversations, despite limitations in scholarly writing, calls for reevaluating writing practices and teaching methods, stressing creativity and human expression (Barrot, 2023; Dergaa et al., 2023; Moqbel & Al-Kadi, 2023). ChatGPT outperforms traditional search engines, providing detailed answers, summarizing information, saving time for students, and helping teachers create relevant teaching materials and lesson plans (Farrokhnia et al., 2023).

Bandura's Self-Efficacy Concept and its Significance in the Writing Context

Overview of Bandura's Self-efficacy Theory

Self-efficacy, an idea initially put forth by Bandura (1977) and later situated within the broader schema of the social cognitive theory of human behavior (Pajares, 2003), encapsulates individuals' conviction in their aptitude to carry out activities that influence their lives. This belief system has implications for cognitive reasoning, emotional disposition, intrinsically motivated endeavors, and conduct. Bandura (1994) states that believing in oneself is pivotal for personal growth and fulfillment. Those with a strong sense of self-efficacy tackle tough challenges with the conviction that they can be conquered rather than allowing them to become overwhelming hurdles. This positive perspective fosters a heightened sense of achievement, lessens stress, and reduces the likelihood of depression (p. 1).

Conversely, self-doubt can lead individuals to avoid challenges and focus more on personal deficiencies, which can elevate stress levels and lead to depression (Bandura, 1994). Various elements, including observational learning, verbal cues, and physiological conditions, impact self-efficacy beliefs, which serve as indicators for behavioral results, influence career decisions, and shape academic achievement (Pajares, 2003). Moreover, such beliefs in self-efficacy are intrinsically tied to writing competence and are associated with factors like academic aspirations, anticipated results, and writing-related apprehensions (Pajares, 2003). Significantly, Nazari et al. (2021) established that self-efficacy serves as a meaningful forecaster of activities, motivational conditions, and vocational commitment, influencing elements like proficiency in English, technological acceptance, conceptual generation, writing approaches, and a propensity to engage in writing among EFL learners.

The Application of Self-Efficacy Theory in Academic Writing

Self-efficacy, the belief in one's abilities to handle future situations, is vital in shaping learners' academic self-image, particularly for second-language (L2) learners (Demikol & DemiRoz, 2022). This set of convictions plays a pivotal role in establishing objectives, the choice of strategies, commitment to tasks, and overall performance. These elements are especially critical in shaping writing achievements in a second language (L2) for students learning English as a Foreign Language (EFL) (Demikol & DemiRoz, 2022). For instance, high self-efficacy predicts success in L2 summary writing (Golparvar & Khafi, 2021), and an increase in self-efficacy levels can mitigate learners' anxiety, correlating with proficiency in writing that intensifies as students progress (Demikol & DemiRoz, 2022). This efficacy extends to task-specific self-belief, crucial for familiar tasks, and learning-specific self-efficacy, essential for unfamiliar tasks (Pajares, 2003). Significantly, self-efficacy perceptions can directly impact writing performance, with

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various cognitive and psychological factors, including writing strategies, working memory capacity, language aptitude, age differences, motivation, and L2 writing anxiety, influencing L2 writing (Demikol & DemiRoz, 2022). However, low motivation can diminish self-efficacy beliefs, and writing anxiety, often leading to writing avoidance, can impair writing skills development (Bulut, 2017, p. 284; Mascle, 2013).

Conversely, high self-efficacy can foster confidence, reducing anxiety (Li, 2022). Finally, The model of writing self-efficacy comprises three key dimensions: conceptualization, writing norms, and self-management. Within this framework, generating ideas is a continual process that significantly influences all other facets of writing (Bruning et al., 2013).

Purpose of The Study

Although there exists an extensive corpus of scholarly work that examines the function of AI in higher education, the advent of AI writing utilities like ChatGPT and the integration of Bandura's theory of self-efficacy into academic writing discussions, a notable void persists regarding the interaction between dependency on AI instruments and writing self-efficacy. The purpose of this investigation is to examine how the use of ChatGPT relates to self-efficacy in academic writing, intending to address the knowledge gap.

The research addresses explicitly three investigatory queries:

(1) Does the academic writing self-efficacy differ between ChatGPT users and non-users?
(2) Does writing self-efficacy predict the duration of ChatGPT usage? and
(3) Does the duration of ChatGPT usage predict the level of reliance on ChatGPT?

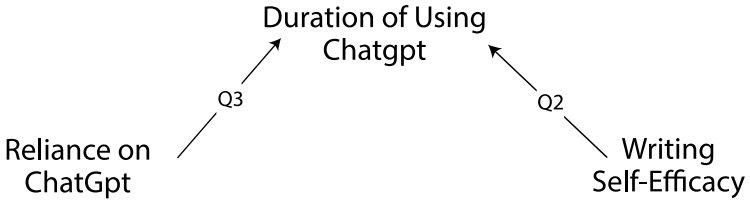

Figure 1. Major Research Questions

The objective is to provide a nuanced understanding of the dynamics between AI tool usage and self-efficacy, contributing to the broader discourse on the role and impact of AI tools on academic writing.

Methodology

Research Design

A cross-sectional methodological framework was utilized to examine the relationship between the use and dependence on ChatGPT and self-efficacy in scholarly writing, focusing mainly on M.A. and Ph.D. students. Various statistical analyses thoroughly address each research question, ranging from independent-sample t-tests to ordinal logistic regressions and tests of between-subjects effects. This methodology was chosen to comprehensively explore the potential impacts and correlations between ChatGPT usage, reliance, and academic writing self-efficacy.

Participants

This study involved 148 students from the letters and human sciences faculties at Dhar EL Mahraz in Fez and Moulay Smail in Meknes, predominantly from departments focusing on English

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Studies. The participants included 75 males (50.7%) and 73 females (49.3%), ranging in age from 20 to over 45 years. Both M.A. (N=54) and Ph.D. (N=94) students were represented. The participants were randomly selected, and the focus was on departments of Education/Linguistics (N=52), Literary Studies (N=16), Gender Studies (N=38), and Cultural Studies (N=27).

Data Collection and Analysis

Data acquisition was executed via questionnaires disseminated during formal M.A. classes and through social media platforms such as WhatsApp and Facebook groups tailored explicitly for Ph.D. candidates. Some professors and Ph.D. students also assisted in disseminating and supervising the questionnaires.

The questionnaire, inspired by the Research Self-Efficacy Scale (Büyüköztürk et al., 2016), the Scale for Academic Writing (Mitchell et al., 2017), and the Second Language Writing Anxiety Inventory (Cheng, 2004), comprised three sections.

1. Research-writing Self-Efficacy: This section contained ten items rated using a five-point Likert scale that spans from 'Strongly Disagree = 1' to 'Strongly Agree = 5', such as "*I feel capable of developing original ideas in my academic writing*" and "*I am capable of paraphrasing and summarizing effectively.*"
2. Reliance on ChatGPT in Research-Writing: This section contained ten items rated using a five-point Likert scale that spans from 'Strongly Disagree = 1' to 'Strongly Agree = 5', such as "*I feel reliant on ChatGPT to paraphrase and summarize effectively," and "Without ChatGPT, I find it harder to express my thoughts clearly in writing.*"
3. Duration of ChatGPT Usage: This section collected data on how often participants used ChatGPT.

After data collection, the information underwent rigorous statistical analyses to answer the research questions. Data analysis was conducted using SPSS software. The procedure for each research question is as follows:

1. To examine if there is a difference in academic writing self-efficacy between ChatGPT users and non-users (Research Question 1): Participants were categorized into two groups: 'ChatGPT Users' and 'ChatGPT Non-users'. T-tests for independent samples assessed differences in writing self-efficacy scores across the two groups.
2. To assess whether writing self-efficacy predicts the length of time ChatGPT is employed (Addressing Research Question 2), an ordinal logistic regression was carried out with 'duration of ChatGPT Usage' as the outcome variable and 'Writing Self-Efficacy' as the predictor variable. Respondents who indicated they did not utilize ChatGPT were omitted from this analysis.
3. To investigate if the frequency of ChatGPT usage predicts the level of reliance on ChatGPT (Research Question 3), we performed a linear regression with 'reliance on ChatGPT' as the dependent variable and ‘duration of ChatGPT usage' as the independent variable.

The Scale

The questionnaires were pre-tested with 20 respondents to ensure clarity and appropriateness of questions and statements. The overall self-efficacy and ChatGPT reliance scores were computed based on the responses to relevant items. The consistency of the scales for Research-writing Self-Efficacy and Dependence on ChatGPT was evaluated, revealing high reliability, as evidenced by Cronbach's alpha coefficients of 0.927 and 0.791, respectively.

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Table 1. *Reliability Statistics*

	Cronbach's Alpha	N of Items
Research Writing Self-Efficacy Scale	.927	10
ChatGpt Reliance Scale	.791	10
The Use of ChatGpt	.747	6

Results

Research Question 1: Is there a difference in academic writing self-efficacy between ChatGPT users and non-users?

Table 2. *Descriptive Statistics for Non-ChatGpt Users and ChatGpt Users*

	N	%	Mean	Std. Deviation
Non-Chatgpt Users	22	14.9%	3.4364	1.38101
Chatgpt Users	126	85.1%	3.9571	.61442

As indicated in Table 3, most (85.1%) of the 148 students reported using ChatGPT. Non-ChatGPT and ChatGPT users displayed average self-efficacy scores of 3.44 (SD = 1.38) and 3.96 (SD = 0.61).

Table 3. *Statistical Analysis of Writing Self-Efficacy Using Independent Samples T-test*

	Levene's Test		t-test for Equality of Means		
	F	Sig.	t	df	P (two-tailed)
Equal variances assumed	53.216	<.001	-2.916	146	.004

To compare the self-efficacy scores of the two groups, an independent samples t-test was conducted. Levene's test revealed heterogeneity of variance ($F = 53.216$, $p < .001$); hence, the results with equal variances not assumed were considered. This analysis (Table 3) revealed a statistically significant difference in writing self-efficacy scores for Non-ChatGPT Users (M=3.44, SD=1.38) and ChatGPT Users (M=3.96, SD=0.61); $t(22.472) = -1.739$, $p = .048$ (one-tailed). Thus, ChatGPT users demonstrated significantly higher academic writing self-efficacy than non-users.

Research Question 2: Does writing self-efficacy predict the duration of ChatGPT usage?

Table 4. *Ordinal Regression Analysis Predicting Duration of ChatGPT Use from Writing Self-Efficacy*

						95% Confidence Interval	
	Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Writing_Self_efficacy	.692	.273	6.435	1	.011	.157	1.227

An ordinal regression examination was employed to assess the capability of research writing self-efficacy in predicting the length of usage of ChatGPT (as presented in Table 4). The analysis disclosed that writing self-efficacy significantly forecasted the extent of ChatGPT usage (Estimate = .692, Wald = 6.435, p = .011). Specifically, elevated levels of writing self-efficacy correlated with prolonged utilization of ChatGPT.

Research Question 3: Does the frequency of ChatGPT usage predict the level of reliance on ChatGPT?

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Table 5. *Regression Summary for ChatGPT Usage Duration Predicting Reliance on ChatGPT*

R	R Square	Std. Error of the Estimate	Change Statistics				
			B (Constant)	B (Chatgpt Usage Duration)	Standardized Coefficients Beta	t	Sig.
.619[a]	.383	.55494	.383	.258	.619	8.816	<.001

a. Predictors: (Constant), ChatGpt Usage Duration.

To predict the dependence on ChatGPT based on the frequency of its usage, a regression analysis was carried out (Table 6). The model significantly predicted reliance on ChatGPT, $p < .001$, with R^2 of .383. Participants' frequency of ChatGPT usage significantly predicted their reliance on ChatGPT ($\beta = .619$, $p < .001$), indicating that a higher duration of use corresponded to increased reliance.

Discussions

The outcomes of this study furnish essential insights into the dynamic relationship between the employment of ChatGPT and academic writing self-efficacy among postgraduate students. Key observations can be encapsulated as follows:

Firstly, users of ChatGPT manifested a markedly elevated level of writing self-efficacy compared to those who abstained from using the tool. This observation corroborates extant literature asserting the positive influence of technological instruments on self-efficacy within academic milieus (Huang, 2013). The uptick in writing self-efficacy among ChatGPT users may be ascribed to the platform's facilitative function in amplifying linguistic and compositional competence. This finding aligns with the argument that AI tools can enhance self-efficacy in academic writing by providing learners with continuous feedback, thereby fostering a sense of accomplishment, a critical self-efficacy factor, as Bandura (1997) identified.

Secondly, the research found that a student's writing self-efficacy was a significant predictor of the duration of ChatGPT utilization. This concurs with Bandura's (1997) theory of self-efficacy, which proposes that individuals with heightened confidence in their capabilities are more prone to engage in achievable endeavors.

Thirdly, a notable correlation was detected between the frequency of ChatGPT employment and the extent of reliance upon the instrument. This is congruent with theories concerning habituation in technological interactions, suggesting that amplified frequency culminates in escalated dependency (LaRose & Eastin, 2004). However, an R-squared of 38.3% is relatively moderate, indicating that while ChatGPT usage duration explains some of the variability in reliance on ChatGPT, a substantial portion remains unaccounted for. This suggests that other factors not included in this model also influence the level of dependence on ChatGPT.

Conclusion

This study sheds light on how using ChatGPT affects postgraduate students' confidence in their academic writing. There is a strong correlation between students who use ChatGPT and their level of writing self-efficacy, suggesting that ChatGPT may help improve how well students write by giving them feedback and making them feel more confident about their composition. Further, writing self-efficacy predicts more prolonged ChatGPT use, supporting the idea that confidence in one's abilities encourages continued engagement with supportive tools. Lastly, increased ChatGPT

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use correlates with greater reliance on it, although the study does not fully explain this relationship. These findings accentuate the value of ChatGPT in academic writing while also hinting at the complexities of dependency on technological aids.

Suggestions for the Future Research

This study sheds light on how AI tools like ChatGPT affect academic writing confidence, but there is room for more research. Future studies could examine how writing self-efficacy changes with ChatGPT use by following participants longer. They could also use interviews or observations to dig deeper into the weak link between ChatGPT reliance and writing self-efficacy. Exploring other AI tools and including a broader range of academic participants, like undergraduates or faculty, could give a fuller picture of AI's role in writing skills.

Educational Implications

Integrating AI tools like ChatGPT into learning can boost postgraduate students' writing confidence. Teachers should guide students in using these tools wisely, balancing their help with developing independent writing skills. Setting clear goals, offering positive feedback, and creating real success opportunities are vital strategies. This approach helps avoid overreliance on AI while fostering self-efficacy in academic writing.

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Conflicts of Interest

The authors declare no conflict of interest.

Authenticity

This manuscript is an original work.

Artificial Intelligence Statement

AI and AI-assisted technologies were not used.

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References

Altmäe, S., Sola-Leyva, A., & Salumets, A. (2023). Artificial intelligence in scientific writing: A friend or a foe? *Reproductive BioMedicine Online*, S1472648323002195. https://doi.org/10.1016/j.rbmo.2023.04.009

Bandura, A. (1977). Self-efficacy: Toward a Unifying Theory of Behavioral Change. *Psychological Review*, *84*(2), 191–215. https://doi.org/10.1037/0033-295X.84.2.191

Bandura, A. (1994). Self-Efficacy. In *Encyclopedia of human behavior* (Vol. 4). New York: Academic Press.

Barrot, J. S. (2023). Using ChatGPT for second language writing: Pitfalls and potentials. *Assessing Writing*, *57*, 100745. https://doi.org/10.1016/j.asw.2023.100745

Bruning, R., Dempsey, M., Kauffman, D. F., McKim, C., & Zumbrunn, S. (2013). Examining dimensions of self-efficacy for writing. *Journal of Educational Psychology*, *105*(1), 25–38. https://doi.org/10.1037/a0029692

Bulut, P. (2017). The Effect of Primary School Students Writing Attitudes and Writing Self-Efficacy Beliefs on Their Summary Writing Achievement. *International Electronic Journal of Elementary Education*, *10*(2), 281–285. https://doi.org/10.26822/iejee.2017236123

Büyüköztürk, Ş., Atalay, K., Sozgun, Z., & Kebapçı, Ş. (2011). The development of research self-efficacy scale. Cypriot Journal of Educational Sciences, 6(1), 22-29.

Cheng, Y.-S. (2004). A measure of second language writing anxiety: Scale development and preliminary validation. *Journal of Second Language Writing*, *13*(4), 313–335. https://doi.org/10.1016/j.jslw.2004.07.001

Crompton, H., & Burke, D. (2023). Artificial intelligence in higher education: The state of the field. *International Journal of Educational Technology in Higher Education*, *20*(1), 22. https://doi.org/10.1186/s41239-023-00392-8

Demikol, T., & DemiRoz, H. (2022). Exploring the relationship between L2 writing self-efficacy and language proficiency level. *The Literacy Trek*, *8*(2), 203–222. https://doi.org/10.47216/literacytrek.1148773

Dergaa, I., Chamari, K., Zmijewski, P., & Ben Saad, H. (2023). From human writing to artificial intelligence generated text: Examining the prospects and potential threats of ChatGPT in academic writing. *Biology of Sport*, *40*(2), 615–622. https://doi.org/10.5114/biolsport.2023.125623

Fadhilah, U., Lizawati, & Saribu, H, J, D. (2018). Effectiveness of Grammarly Application for Writing English Abstract. *International Journal of Science and Research (IJSR)*, 163-166. https://www.ijsr.net/archive/v8i12/ART20202994.pdf

Farrokhnia, M., Banihashem, S. K., Noroozi, O., & Wals, A. (2023). A SWOT analysis of ChatGPT: Implications for educational practice and research. *Innovations in Education and Teaching International*, 1–15. https://doi.org/10.1080/14703297.2023.2195846

Electronic copy available at: https://ssrn.com/abstract=4814727

Fitria, N. T. (2023). Artificial intelligence (AI) technology in OpenAI ChatGPT application: A review of ChatGPT in writing English essay. *Journal of English Language Teaching, 12*(1), 44-58. https://journal.unnes.ac.id/sju/index.php/elt/article/view/64069

Gocen, A., & Aydemir, F. (2020). Artificial Intelligence in Education and Schools. *Research on Education and Media*, *12*(1), 13–21. https://doi.org/10.2478/rem-2020-0003

Golan, R., Reddy, R., Muthigi, A., & Ramasamy, R. (2023). Artificial intelligence in academic writing: A paradigm-shifting technological advance. *Nature Reviews Urology*, *20*(6), 327–328. https://doi.org/10.1038/s41585-023-00746-x

Golparvar, S. E., & Khafi, A. (2021). The role of L2 writing self-efficacy in integrated writing strategy use and performance. *Assessing Writing*, *47*, 100504. https://doi.org/10.1016/j.asw.2020.100504

Hidayati, I. N., Dewanti, R., & Rasyid, Y. (2021). Integrating ICT Learning Model and the Use of AI to Enhance Students' Writing Quality. *Proceedings of the 2nd Borobudur International Symposium on Humanities and Social Sciences, BIS-HSS 2020, 18 November 2020, Magelang, Central Java, Indonesia*. Presented at the Proceedings of the 2nd Borobudur International Symposium on Humanities and Social Sciences, BIS-HSS 2020, 18 November 2020, Magelang, Central Java, Indonesia, Magelang, Indonesia. Magelang, Indonesia: EAI. https://doi.org/10.4108/eai.18-11-2020.2311775

Huang, J., Saleh, S., & Liu, Y. (2021). A Review on Artificial Intelligence in Education. *Academic Journal of Interdisciplinary Studies*, *10*(3), 206. https://doi.org/10.36941/ajis-2021-0077

LaRose, R., & Eastin, M. S. (2004). A Social Cognitive Theory of Internet Uses and Gratifications: Toward a New Model of Media Attendance. *Journal of Broadcasting & Electronic Media*, *48*(3), 358–377. https://doi.org/10.1207/s15506878jobem4803_2

Li, D. (2022). A Review of EFL Students' English Writing Self-efficacy. *IRA International Journal of Education and Multidisciplinary Studies*, *18*(3), 94. https://doi.org/10.21013/jems.v18.n3.p4

Mascle, D. D. (2013). Writing Self-Efficacy and Written Communication Skills. *Business Communication Quarterly*, *76*(2), 216–225. https://doi.org/10.1177/1080569913480234

Mitchell, K. M., Harrigan, T., Stefansson, T., & Setlack, H. (2017). Exploring Self-Efficacy and Anxiety in First-Year Nursing Students Enrolled in a Discipline-Specific Scholarly Writing Course. *Quality Advancement in Nursing Education - Avancées En Formation Infirmière*, *3*(1). https://doi.org/10.17483/2368-6669.1084

Moqbel, M. S. S., & Al-Kadi, A. M. T. (2023). Foreign Language Learning Assessment in the Age of ChatGPT: A Theoretical Account. *Journal of English Studies in Arabia Felix*, *2*(1), 71–84. https://doi.org/10.56540/jesaf.v2i1.62

Nazari, N., Shabbir, M. S., & Setiawan, R. (2021). Application of Artificial Intelligence powered digital writing assistant in higher education: Randomized controlled trial. *Heliyon*, *7*(5), e07014. https://doi.org/10.1016/j.heliyon.2021.e07014

Pajares, F. (2003). SELF-EFFICACY BELIEFS, MOTIVATION, AND ACHIEVEMENT IN WRITING: A REVIEW OF THE LITERATURE. *Reading & Writing Quarterly*, *19*(2), 139–158. https://doi.org/10.1080/10573560308222

Pence, H. E. (2019). Artificial Intelligence in Higher Education: New Wine in Old Wineskins? *Journal of Educational Technology Systems*, *48*(1), 5–13. https://doi.org/10.1177/0047239519865577

Electronic copy available at: https://ssrn.com/abstract=4814727

Purcell, A. B. (2013, July). *The Impact of Digital Tools on Student Writing and How Writing is Taught in Schools*. From Pew Research Center: https://www.pewresearch.org/internet/Reports/2013/Teachers-technology-and-writing

Reiss, M. J. (2021). The use of AI in education: Practicalities and ethical considerations. *London Review of Education, 19*(1). https://doi.org/10.14324/LRE.19.1.05

Salvagno, M., Taccone, F. S., & Gerli, A. G. (2023). Can artificial intelligence help for scientific writing? *Critical Care*, *27*(1), 75. https://doi.org/10.1186/s13054-023-04380-2

Electronic copy available at: https://ssrn.com/abstract=4814727